



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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July 3, 2003

TO: Minerals File

FROM: Paul Baker, Senior Reclamation Biologist 

RE: Site Inspection, Diamond K Gypsum, Diamond K Quarry, M/015/041, Emery County, Utah

Date of Inspection: May 30, 2003  
Time of Inspection: 8:00 to 10:00 a.m.  
Conditions: Mostly clear, 70's  
Participants: Karen Palmer and Clint Henrie (Diamond K) and Paul Baker (DOGM)

## Purpose of Inspection:

The operator is planning to begin mining in a new area and wanted me to take measurements of vegetation cover in this area. We also wanted to look at the reclaimed areas to see if there was any more vegetation growth than they appeared to have been last February.

## Observations:

I took vegetation cover measurements on 35 quadrats scattered over the area proposed to be disturbed (Photo 1). Although I tried to cover the entire area and believe my measurements were as objective as I could make them, I do not believe they were placed in a valid scientific or statistical manner. I do feel, though, that they are adequate for establishing a revegetation success standard.

The dominant species encountered in order of cover values were Fremont pepperweed (*Lepidium montanum*), shadscale (*Atriplex confertifolia*), Gardner saltbush (*Atriplex cuneata* var. *gardneri*), Indian ricegrass (*Oryzopsis hymenoides*), and Green's rabbitbrush (*Chrysothamnus Greenei*). Total vegetative cover was 6.07 percent. Cover from cryptogams was estimated as 21.2 percent, and cover from litter was estimated as 11.5 percent.

The amount of cover in the reclaimed area is similar to what we found last February. Desirable species found in this area include smooth brome, orchardgrass, Indian ricegrass, and crested wheatgrass, and they are mostly concentrated in one swale (Photo 2). Photo 3 also shows part of the reclaimed area. Although there were numerous weed skeletons from previous years, we found almost no living weeds.

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Diamond K Gypsum, Diamond K Mine

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### **Conclusions and Recommendations:**

I was surprised at how little vegetation cover there was in the undisturbed area. The lack of vegetation cover could partly be a function of the drought, but for now, the revegetation success standard will be 4.2 percent. Cover in undisturbed areas should be checked periodically to see if remains constant or if it changes when there is more precipitation.

The operator has expressed a willingness to reseed those areas that were previously graded and seeded, but the Division and the operator need to consider alternate revegetation methods. There is what appears to be a test plot at the nearby Eagle Canyon Mine where gypsum was placed on the surface (Photo 4). This area has very good vegetation growth. There are quite a few rocks on the surface in this location, and this may also have positively influenced the amount of vegetation cover.

It might be beneficial for the operator to apply a layer of waste gypsum over the topsoil. This assumes the waste gypsum contains coarse fragments that would help increase water infiltration. Even just applying rocks to the surface, not necessarily gypsum, would probably be beneficial.

The Division, the operator, and the BLM should develop a detailed plan for how reclamation is to be accomplished in the fall. This plan should include a revised seed mix and surface preparation plans, including roughening techniques and application of gypsum or other materials.

jb

cc: Karen Palmer, Diamond K  
Dean Nyffeler, Price BLM

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# ATTACHMENT

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## Photographs

M/015/041, Diamond K Mine, Diamond K Gypsum



Photo 1. Undisturbed area where the operator intends to mine.



Photo 3. Another view of part of the reclaimed area.



Photo 2. Part of the previously reclaimed area. The vegetation in the left center portion of this photo is in a swale.



Photo 4. This is the area at the Eagle Canyon Mine where there has been some coarse gypsum placed on the surface.